Daniel Dewar

MD 1853

ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 – 1346

Heat

Considered as a Hygienic & Therapeutic Agent -

By Daniel Dewar

Glasgow
Feby. 1833 -

It is doubtless true that the means of observing disease in a large Hospital are many and important; especially to such, as are officially connected with such an Institution, and they cannot fail to furnish an impressible mind with much that may in after life be carried into practice, and there, be usefully applied. While such is the case, it cannot again be denied that the very varied pursuits of the student preclude his following out the progress of disease in a manner, such as will enable him to glean, from his own limited experience, observations that might serve as an index of the advantage

he has taken of those opportunities, for practical improvement, placed within his reach. It is true he may compare his experience with that of others, he may note whether the outlines drawn for his guidance are realized by the living pictures. But yet to offer this as a test of the progress he may have made in the knowledge of the theory or practice of the profession he seeks to follow would not suffice. Nor would it secure the object sought by demanding a paper or Thesis such as the present; which doubtless is intended to serve as a proof of fitness for those distinctions which a University confers.

These circumstances have determined me not to choose for the following remarks

a description of the symptoms or treatment of any particular disease - in doing so, I must have been obliged, not only to transcribe the opinions, but I fear also the language of others - It is true I might have succeeded in securing a neatness of phrase and degree of arrangement that will be sought for in vain in the subsequent observations - This however it is to be hoped will in no way interfere with the purpose they are intended to serve -

I propose then to speak of heat as a Hygienic and Remedial agent; not to inquire into its ultimate nature, but to point out its influence in

preserving health - and of its application in the treatment of disease - To notice the more important facts connected with the subject, observed by myself or others - and to deduce from them those general principles that should guide us in its application -

I cannot here avoid noticing a very striking characteristic of the mind namely the belief in and the universal search after specifics - A tendency of mind developing itself in all climes and we believe in all times - This mental feature has been useful - It has stimulated inquiry - The search after those mysterious agencies, that are

to cure not only special, but as is too often fondly believed all diseases; has discovered much that a long and wide experience has shewn to be useful to mankind - But, it is no less true, that it has hindered and still continues to interfere with placing the Science of Medicine on a broad and Scientific basis - Has been the means of evolving monstrous quackeries that have deluded so many of mankind and caused to be overlooked, important means in the treatment of disease. Readily obtained, their very simplicity and the ease with which they may be employed being too often insufficient barriers to their general introduction - In this category

Heat may be included - Its efficacy as a remedial agent, being, we fear, too little regarded, even by Professional Men - On this account results due to its influence being often overlooked - and in too many instances never appreciated -

In the pursuit of Physiological Science - In noticing those laws or conditions that regulate healthy action Heat is observed to play an important part - In the first place in rousing a latent vitality - And afterwards in sustaining those operations due to the control of this principle - In the higher animals a comparatively trivial lowering of the temperature of the body, destroying life - Its partial abstraction

in some of the lower forms of animal life, arresting, for the time being, the animal functions, and lessening in a marked degree those known as the Organic - including in this term the Circulatory, Respiratory, Secretory and Digestive apparatus -

While the abstraction of Heat, results in those striking Phenomena. No less curious and instructive are the results arising from its increase - Here stimulation of the function is the result, this, being proportionate to the heat employed - and if prolonged will terminate in exhaustion and death - And in an excessive degree, destruction of the tissue to which it is applied, follows - These facts are not only interesting - They are of practical importance

and they may be usefully applied -

All animals generate heat -

They maintain in health a nearly uniform temperature, This has been found, to be due to actions principally chemical, that take place within the organism - The nervous system also, seems to exert an important control in its regulation -

We have premised these remarks before speaking of heat as applicable to the prevention, or removal of disease - To this we now proceed -

The mortality amongst the children of the lower orders, is well ascertained to preponderate greatly over that of the more elevated classes - This depends doubtless on

many causes - Amongst these may be enumerated impure air - insufficient food &c - But the absence of these means, for sustaining the caloric generated within the body in the way already stated, we look on as one of the most important. That the organic functions are vigorous in the earlier periods of life cannot be doubted; this is amply evidenced by the rapid increase in the growth of the child - and while such is the case it is no less obvious that this activity must be sustained, must not be needlessly expended: then in robust health this is required. There are however cases that might be classed as healthy, in which there is no obvious disease, but that even to ordinary observers, are spoken of, as evincing a delicate

state of health in which a special attention is necessary, To these the stimulus of heat is of the first importance. Not certainly to heat externally applied, but, first, in securing active vigour of those functions that evolve this principle, and, secondly, avoiding its useless expenditure. These indications may be secured by the careful attention to diet, by the judicious supply of combustible material, and by enveloping the general surface in such articles of dress as are markedly non-conductors of Heat —
In this latter respect, Physical Science informs us that materials employed as clothing, essentially differ, this being modified, not only by texture; but by what a priore would not have been inferred, colour, —

There is thus a philosophy in dress, and the inquiry, whether or not the object we are insisting on could be attained without running counter to the principles of taste - would be one, not without its use -

The variable nature of our climate, renders care necessary even in the robust - particularly in those, who follow such pursuits as render exposure to sudden vicissitudes of temperature necessary - Where the appropriate precautions are employed it is often astonishing the immunity from disease that is experienced; But let them be disregarded and Pulmonary, and Rheumatic affections, are the certain results; entailing suffering and materially shortening life - And Care regarding clothing - and

diffusion of the knowledge of the principles on which this ought to be conducted, would, most certainly diminish the rate of mortality, even, in circumstances otherwise unfavourable -

In old age the vigour of the animal functions diminishes, as also the energy of the organic functions - The motions of the body are more slow and enfeebled, the joints becoming stiffened, and a greater susceptibility displayed as regards Atmospheric Changes - And here the beneficial action of heat may also be seen -

A due regard to the nature of the clothing, is, however, not all that is required - The external warmth may be added to, by, artificially raising the temperature of the

surrounding atmosphere. And the normal action of the extremities may be in part stimulated by brisk friction. Such simple arrangements and appliances judiciously had recourse to, will, not only tend to prolong life, but will also secure a pleasure, and comfort, in declining years, that otherwise would be a-wanting.

In the preceding observations it will have been noticed that the interferance recommended; the means employed, is more passive than active in its nature.

We have now to speak of the more direct application of Calorie, drawn from other sources than that merely generated in the Organism. This may be

effected in various ways. The principle of operation or action being nearly the same in all, the modifications such as convenience dictates, thus, heated solids may be employed or heated fluids or vapours, Again the application of these may be merely local, or, they may be made to act on the surface generally. To these several means, of conveying heat to the body it is not required we should particularly refer.
They include the hot water, vapour bath &c &c.
But it may be necessary to observe that when heat is conveyed to the body, conjoined with moisture, the latter must to a certain extent modify its action, producing

Physical, as well as vital changes.

The great majority of acute diseases are attended with local accumulations of blood. These have been variously designated, "Determinations", "Congestions", & "Inflammations", Terms indicating different conditions, these differences being however more relative than absolute. Existing more in degree than in kind.

When such a condition of an organ or part of the body exists, evidence of such an altered condition does make itself manifest, to the individual in whom this abnormal state of matters is present, by what are designated Symptoms. When we come to inquire into these as a guide to the proper means to be adopted

for their removal, we find, that we have first, those appearing in the diseased organ; or the Local Symptoms; and secondly, those that tell the whole system to be involved. Known, as the General Symptoms; which display a greater or less disturbance of all the functions of the organs of organic and animal life. Such being the beautiful and nice balance of relations, that if one be disturbed, all the other operations of the body must sympathize shewing, that although as it were distinct, each portion having its own separate duty to fulfil, yet, it is not for its own behoof it is only an integral portion of a great whole to the wellbeing and integrity of which it ministers —

In diseased conditions as those we have alluded to, the symptoms or signs are such we believe as point out a disturbance of the equilibrium of the circulating mass. The more common causes that give rise to congestions &c. favour also this view. And it is we believe generally admitted, and there is we further imagine, a close relation between the symptoms and the cause that originates them, closer we think than is generally supposed; but which our time will not allow us to follow out.

But further, the symptoms as the progress shew that an effort is made to establish the disturbed balance; though it may be that this, further increases the local

vil, which is the duty of the Physician
to provide against -

The indications to be followed are
then; to adjust the distribution of the mass of
the blood, and to combat those results that
the temporary local determinations may
produce - When such a state of matters
is seen early, the employment of heat may be
usefully adopted, by other means, acting
more directly or more powerfully. In the
form of the hot bath, the vapour bath or even
heated air - These inducing excitation of the
vascular and nervous systems - the skin
also being specially affected, a striking
change in its physical condition being in-
duced - it becomes relaxed its capillaries

are enlarged, this aided by the augmented vigour of the central organ of circulation, the heart, as well as the action of the arterial vessels, increases the afflux of blood to the cutaneous covering, seen by the greater redness of the surface.

The influence of heat may be readily controlled by regulating the temperature and lessening or extending the time of its application. If allowed to act sufficiently long, marked relaxation follows and a free escape of perspiration is a usual result.

Heat, it will thus be seen, not only modifies the distribution of the blood, it lessens also its mass, by the removal of its serum conjoined with an augmented portion of

the ordinary effete matters that pass off by the skin.

We have purposely avoided mentioning those forms of disease in which heat as a remedial agent may be employed; They are numerous, Thus, in Thoracic Inflammations it may be advantageously employed. including Bronchial, Pneumonic & Pleuritic affections. The same may be said of the abdominal viscera whether solid or hollow, in these cases however, it is applicable only in the very earliest stages, later, it would be prejudicial.

In congestions dependant on obstruction & particularly ~~from~~ in cases resulting from organic disease of the heart, it is contra-

=indicated and might prove injurious.

Conditions of the system may be suddenly induced, not of an inflammatory character, in which the nervous centres are primarily involved; in such, a weakening of the energy of the organic functions is a first result; and accompanying this there may be an arrestment of those of Animal life; This is well seen in Apoplexy, Concussion and Congeal Compression.

In these diseased Conditions, a lowering of the temperature of the general surface, presents itself in a marked degree; the hearts action is slow and Labouring, the pulse presents the same character, and the respiration is also difficult; The first duty

then to be attended to in such cases, must evidently be, to arouse the weakened actions. Unless this is done death speedily follows. And to secure this, we must supply artificially, what the natural actions are incapable of furnishing; this is natural & obvious, and is best attained, by the external employment of Warmth to the extremities, either dry or moist, and by the use of brisk frictions. These means sustain the temperature till such time as the normal actions recover and evolve the necessary supply of this important vital stimulant. The steps required to be taken after, require no notice here -

In asphyxia from whatever cause

the same procedure is employed.
It is the only certain means for restoring such accidents; the principles that guide its application being similar to the preceding.

Many have been the ingenious efforts made to penetrate and discover the ultimate nature of fever; these have been fruitless. This was to have been anticipated; man is not permitted to know the nature of things.

In pathology as in every other department of science he is merely limited to the observance of facts; and from these, to deduce general principles; his mental endowments are alone limited to this.

While on the one hand then we know nothing of the essential nature of

fevers; on the other hand there are few diseases in which the principles of treatment are better understood; this refers to fevers resulting from a specific cause; of which Typhus may be adduced as an illustration.

The treatment of this disease may be comprehended in very simple dicta: Attention to the bowels & watching symptoms being all that is required. No efforts will hinder the disease from running its course, it will terminate in fourteen days unless interrupted or prolonged by some local complication; this last, or sinking, constitute the great danger. It is no part of our purpose to speak

of these occurrences that may arise during the progress of Fever, we intend only referring to the sinking, to point out how that in combating this contingency the aid afforded by Heat may often prove invaluable.

The invasion of Typhus, indeed of all Fevers, is marked, by the loss of appetite. Emaciation rapidly succeeds, as a consequence of the absorption of the adipose tissue diffused through the body, the roundness of which is speedily lost. The absorbed fat in great part passing off by the lungs. a new arrangement of its elements takes place, chemical action results, and the evolution of Heat is a consequence.

To sustain the normal amount of this

nature makes every endeavour, The Physician in his treatment follows the same course. He administers stimuli to sustain the weakened action of the heart choosing those rich in carbonaceous matter, thus attaining another Object: he is enabled to keep up the activity of the respiratory process, thereby sustaining the temperature of the body; all care however, is frequently frustrated; a sinking vitality is announced, by the coldness of the extremities, which gradually extends, and if not checked speedily terminates in dissolution. But here it should be borne in mind that even a very few hours may turn the balance

and this we are convinced might be frequently gained by the application of external warmth, making up for the deficiency of the internal operations. Heat in cases similar to those of which we are speaking, is, we are aware, frequently employed, too frequently we fear, as only a last resource. But we are certain that if judiciously applied and its action carefully and sufficiently prolonged the average amount of recoveries might be much augmented.

It were easy to have prolonged our remarks on the agency of heat, on its effects when acting locally, and on its use when applied directly to the

pulmonary mucous membrane -

What we have written will we trust suffice to shew its importance.

It has further the recommendation of readiness in its application, and this at little or no cost; a matter of some moment to the mass of those who require treatment.

Let it not be imagined that we have enjoined the employment of this subtile principle in an exclusive spirit; we have seen frequently the benefit resulting from the other appliances, which experience has established; we have only insisted on the value of this as an aid to the others. Nor do we presume

to suppose we advocate any thing novel, for otherwise, we have only insisted on the therapeutic value of a means we believe to be much overlooked

We have only further in conclusion to add that the preceding remarks may present rather an erratic character In palliation we have only to say that they have been strung together amid the hurry of hospital duties and during the intervals of temporary though troublesome sickness.